

# Teaching Motivational Interviewing to Child Welfare Social Work Students Using Live Supervision and Standardized Clients: A Randomized Controlled Trial

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**ABSTRACT** *Objective:* Motivational interviewing (MI) has demonstrated effectiveness with varied populations; however, methods of training students in MI vary. The present study tests the efficacy of a brief experiential training approach used to teach MI to child welfare social work students. We hypothesized that students exposed to the experimental training would demonstrate more MI adherent behaviors, experience less decay in skills at follow-up, and report higher levels of self-efficacy and positive attitude toward using MI. *Method:* Using a randomized controlled trial design, 54 students were assigned to either live supervision (LS) training with standardized clients (SC) or teaching-as-usual (TAU) online self-study. Students were assessed at 4 time points through self-reports and SC interviews. Audiotapes of interviews were coded using the Motivational Interviewing Treatment Integrity coding system to determine MI skills, adherent behaviors, and proficiency level. *Results:* No significant demographic differences were found between groups. The LS group demonstrated overall positive change across time and consistent improvement trends on MI skills. Although no statistical difference existed between groups on baseline proficiency levels, at the 5-month follow-up, a higher percentage of the LS group had maintained or improved compared with the TAU group, suggesting overall, less decay over time. No differences were found between groups or over time on self-efficacy or empathy, whereas self-reported attitudes towards MI improved in both groups over time. *Conclusions:* Results indi-

cate LS is effective in teaching early stages of MI skills and is a promising training approach for social work students. Implications for social work education and future research recommendations are discussed.

**KEYWORDS:** standardized clients, motivational interviewing, child welfare, education, live supervision, randomized controlled study, social work education, training model

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Educating future child welfare social workers is an essential mission of social work education that incorporates emerging and evidence-based practice methods and prepares students for child welfare employment (Regehr, Stern, & Shlonsky, 2007). However, programmatic implementation of these models remains limited given the challenges of incorporating evidence-based practice methods within an already crowded social work curriculum (Barth, 2008). The purpose of the present study was to test the efficacy of a brief experiential training approach that teaches motivational interviewing (MI) to child welfare social work students. This training approach was of particular interest because it has high potential to be incorporated in the evolving social work curriculum.

### Motivational Interviewing in Child Welfare Social Work

MI is an evidence-based practice that focuses on increasing an individual's motivation to make specific, needed behavior changes (Miller & Rollnick, 2013). MI is a directive, client-centered approach for resolving ambivalence and eliciting behavior change across a broad range of behaviors. Developed initially as an intervention for substance abuse, MI has gained wide popularity and has been used in a variety of settings with diverse populations, including child welfare and other social work populations.

Hohman (2012) reviewed the utility of MI in social work and found the use of MI reduced the incidence of intimate partner violence (Schumacher et al., 2011), enhanced parent-child engagement (Sterrett, Jones, Zalot, & Shook, 2010) and improved retention of families in parenting programs (Chaffin et al., 2009). Carroll, Libby, Sheehan, and Hyland (2001) conducted a randomized clinical trial (RCT) to examine the effect of standard intake interviews as compared with an MI-enhanced intake interview on alcohol treatment attendance rates for clients referred by a child welfare worker. Results indicated that, as compared with clients in the standard intake group, clients in the MI-enhanced intake group were more likely to attend their first and subsequent treatment sessions. Another RCT compared home-based treatments (SafeCare with SafeCare + including MI) and found MI-based treatment was more effective in reducing future child maltreatment reports (Silovsky et al., 2011).

### Teaching MI to Students and Trainees

Although the effectiveness of MI has been demonstrated through research, the methods of educating and training students and trainees in MI have varied across settings and populations served. Even though many training processes increase MI knowledge, this increased knowledge does not necessarily translate to skill competency. Clinician self-report of MI skill acquisition is not always correlated to actual behavioral demonstration of MI skills (Miller, Yahne, Moyers, Martinez, & Pirritano, 2004). Thus, studies evaluating training effectiveness need to assess participants' actual skill change through observation of behavior (e.g., through recording of sessions) rather than relying only on self-reports. In addition, it is equally important to assess retention of knowledge and skills post training. Miller and colleagues (2004) found that coaching and feedback increased post-training proficiency among their sample, but in other samples, personalized feedback and consultation did not have a positive effect on clinician skill level (Moyers et al., 2008). This finding suggested that "different counselors likely require different types and amounts of training to perform a behavioral treatment adequately" (Martino, Canning-Ball, Carroll, & Rounsaville, 2011, p. 364). Systematic reviews exploring the effectiveness of various MI teaching methods for professionals, using behavioral-change indicators and/or simple measures of change in knowledge or attitudes, found that the majority of reviewed studies showed significant enhancement of MI skills for trainees (Barwick et al., 2012; Madson, Loinon, & Lane, 2009). However, systematic reviews have not examined the differential efficacy of various training approaches.

In fact, few studies have reported on research in MI training of student populations. Madson and colleagues (2009) found only 5 of 27 studies included in their review specifically mentioned training bachelor-level clinicians, and 4 of the 5 studies used samples of medical students. No studies were found on training mental health graduate students in MI, including students in psychology, social work, or counseling. The literature review by Barwick and colleagues (2012) did not include student participants, but focused only on clinician samples. One study that did use a sample of undergraduate students in psychology evaluated three training approaches: a 1-hour MI lecture in a counseling theories course, a 1-week intensive MI course, and a 16-week extended MI course (Madson, Schumacher, Noble, & Bonnell, 2013). The students in the extended and intensive courses demonstrated greater MI enhancement than those in the lecture, but no post-course differences in proficiency abilities were found between students who attended the extended or intensive courses. These results suggest a clear need exists for research on training for students, including social work student samples.

### Use of Standardized Patients or Clients and Live Supervision in MI Training

Despite MI having been used in the medical professions for some time (Baer et al., 2004), few studies have made use of standardized client (SC) actors and

simulation for training and evaluation (Barwick et al., 2012; Madson et al., 2009). Using SCs has the advantage of allowing the actors to methodically and systematically simulate behaviors and reactions needed in training settings. However, criticism of the use of SCs has included concerns about whether the actors' portrayals are accurate representations of client responses and interactions in clinical settings. Miller et al. (2004) noted that responses made by the actors "were not representative of how actual clients respond to MI," and that the actors "tended to reproduce the same script" (p. 1060). Even though clinicians being trained in MI were able to demonstrate gains from training when interviewing an SC, the actors also appeared to be less open to moving through the stages of change without specific scripting and prompting (Miller et al., 2004).

The effectiveness of using SCs in social work education (not necessarily focused on MI training) was reviewed, but the literature search identified only 18 studies, including one dissertation (Logie, Bogo, Regehr, & Regehr, 2013). Findings of the review suggested that students were generally receptive to the learning experience, but the use of SCs as a teaching and testing method required consistent implementation with reliable and valid measures for research (Logie et al., 2013). Further research on the benefits of using SC actors in MI training has been recommended (Baer et al., 2004), especially such research with social work students.

Another potential method to teach MI involves the use of live supervision. Although the live supervision method has been historically used in professions such as pharmacy, nursing, and medicine, this approach has not been commonly used in social work education despite good evidence of its efficacy (Beddoe, Ackroyd, Chinnery, & Appletone, 2011; Bogo, 2006; Champe & Kleist, 2003; Haber et al., 2009; Saltzburg, Green, & Drew, 2011). Although the term *live supervision* (LS) has been used to describe a variety of supervision techniques in the helping professions, most scholars agree that LS entails the use of direct, real-time feedback and instruction provided to a trainee by a supervisor who is observing the trainee interacting with a client (or simulated client). Reported benefits of LS for trainees include immediate feedback, increased self-awareness, and enhanced skill and confidence; however, the drawbacks of LS include trainees' initial performance anxiety and the additional time and work burden reported by supervisors (Champe & Kleist, 2003).

Few studies are available on the use of LS in MI training with social work samples, especially samples from child welfare practice. Saltzburg et al. (2011) conducted focus groups and surveys to explore LS experiences of master of social work (MSW) students in field placements. As compared with their students in field placements without LS, students who received LS reported LS improved their acquisition of skills and recall of knowledge as well as their understanding of theory. Additionally, students reported their experience with LS contributed to more meaningful and in-depth conversations in later supervision (not live).

In Smith et al.'s (2012) study of LS and MI training—although not specific to social work students—the research team explored the effectiveness of providing LS via teleconference supervision. In this study, MI was taught to clinicians who were providing substance abuse treatment. The researchers found that LS was generally more efficacious than training provided through a workshop and supervision that used previously recorded therapy sessions (rather than live observations). Teleconference supervision had significantly higher scores at follow-up on both MI spirit and empathy ratings and also demonstrated a higher percentage of MI-adherent behaviors, with greater reflection-to-question ratios. However, teleconference supervision had significantly less complex reflections, and few differences were found between the groups related to MI proficiency ratings as indicated by the Motivational Interviewing Treatment Integrity Scale coding system (MITI 3.1.1; Moyers, Martin, Manuel, Miller, & Ernst, 2010).

The MITI consists of global scores and behavior counts. Based on the rater's overall impression and judgment, the five global scores are *evocation*, *collaboration*, *autonomy/support*, *direction*, and *empathy*; these global scores represent empathy and the *spirit of MI*. The behavior counts are *giving information*, *MI adherent behavior*, *MI nonadherent behavior*, *closed questions*, *open questions*, *simple reflections*, and *complex reflections*. Trained MITI coders rate a random segment, typically about 20 minutes, of a recorded client-therapist session, and MITI summary scores are derived from behavior counts as reflection-to-question ratio, percentage of open questions, percentage of complex reflections, and percentage of MI adherent behavior. The MITI has been tested for reliability and validity (Forsberg et al, 2008; Moyers et al., 2005).

Overall, the use of SCs and LS are promising in training, but such use warrants further research, particularly with understudied groups such as social work students. Assuming that MI is a promising clinical method for child welfare practice, then it is essential that social work educators determine the most effective ways of teaching and training students in using MI methods. The Council on Social Work Education (CSWE) had identified competency-based training as the gold standard for social work education in child welfare (CSWE, 2008). Training that simply increases MI knowledge and alters attitudes is inadequate because those changes do not ensure competency in the clinical setting (Barwick et al., 2012). However, one way to help social workers achieve competency is by practicing MI skills in simulated clinical settings where supervision is immediate (i.e., live). This type of direct “hands on” learning and assessment is supported by research (Beddoe et al., 2011; Haber et al., 2009; Saltzburg et al., 2011).

### Study Purpose

The purpose of this study was to test a brief educational approach for instructing social work students to use MI in a child welfare setting. This study used a randomized controlled trial design to compare MI skill attainment between a

“treatment” group of social work students and a control group of students. The control group received MI instruction through “teaching as usual” (TAU) training; The TAU condition involved a directed MI reading and review of online video clips. The treatment group received MI training using a method that incorporated LS with SC in a small-group format. The research team predicted that students exposed to the LS training model would demonstrate more MI-adherent (MIA) behaviors than students exposed to TAU. In addition, the research team expected students exposed to the LS training would demonstrate less decay in MI skills over time (i.e., measured at 5-month follow-up). The researchers also hypothesized that students exposed to the LS model would demonstrate higher levels of self-efficacy, empathy, and positive attitudes toward using MI with a child welfare population as compared with students who received TAU.

## Method

### Participants

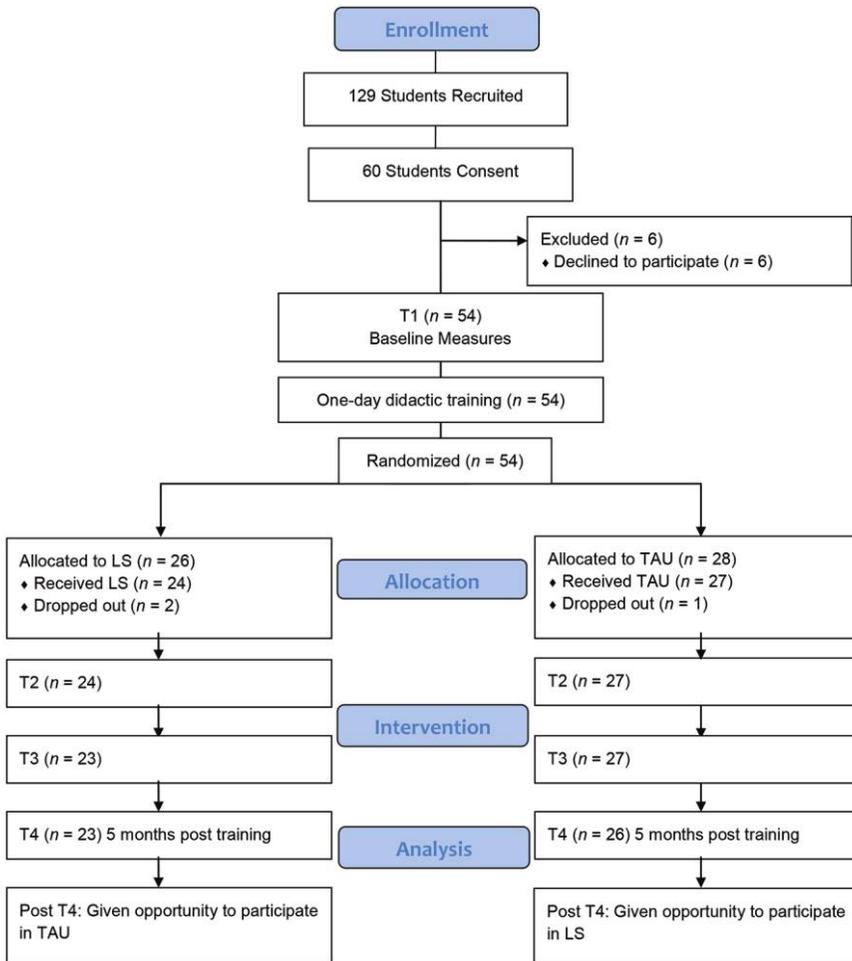
Eligible participants were full- and part-time bachelor of social work (BSW) and MSW students enrolled in a child welfare field placement for the 2013 semester at a large urban school of social work. Upon obtaining approval from the first author’s Institutional Review Board, 129 students were identified as potential study participants through the school’s Department of Field Education and served as the study’s sampling frame. Recruitment letters were sent to 18 BSW students and 111 MSW students.

Of the 129 potential study participants, 64 students (50%) were identified as Title IV-E trainees. The Title IV-E Program mission is to prepare social work students to provide public child welfare services to families and children. The program is funded through federal Title IV-E funds to increase the number of professionally-trained child welfare social workers nationally and to further the development of core values, knowledge, and skills necessary for competent public child welfare practice.

Initially, 60 students consented to participate in the study; however, six students withdrew their consent before the study began, leaving a sample of 54 participants (see Figure 1). An a priori power analysis was conducted to determine the minimum sample size needed to achieve 80% power to detect a significant difference in MI competence at a level of  $p < 0.05$ . Based on the effect size (Cohen’s  $d = 0.73$ ) from a prior study (Moyers et al., 2008), we determined a sample size of 46 participants was needed (i.e., 23 students in each group).

### Research Design

The study data were collected at four time points over 7 months: baseline (T1), onset of training (T2), conclusion of training (T3), and 5-month follow-up (T4). See Figure 1. The training conditions, LS or TAU, occurred between T2 and T3.



**Figure 1.** Study flow diagram and design: number of participants assessed for eligibility, number who consented and were eligible, number randomized (per group), number who received allocated intervention (per group), number who were lost to follow-up (per group), and number included in the main analysis of primary outcomes (per group). T1 = baseline. T2 = onset of training. T3 = conclusion of training. T4 = 5-month follow-up.

Upon signing an informed consent, participants completed a demographic questionnaire and a series of surveys.

Participants submitted a 30-minute audiotaped interview that served as a baseline measure (T1) of empathy and other global measures. (This measure could not be used to assess specific behavioral counts of the MITI, as noted in Limitations.) A 20-minute segment of each audiotape was randomly selected and evaluated using the global empathy scoring of the MITI 3.1.1 (Moyers, Martin, Manuel, Miller, & Ernst, 2010). Data collection for T1 occurred over a 2-month period. After all par-

ticipants had submitted T1 materials, the full sample of participants from both the LS and TAU groups attended a one-day, 6-hour didactic training that introduced students to the basic concepts of MI. The didactic training focused on explicit knowledge of MI, such as the four stages or processes of MI (i.e., engaging, focusing, evoking, and planning) as well as the spirit of MI (Miller & Rollnick, 2013). Notably, the didactic training was intentionally designed with minimal use of role-plays or small group activities and was presented in lecture format.

T2 data collection occurred the day after the didactic training. At T2, all study participants conducted a 30-minute interview with a child welfare SC actor; interviews took place in a professional simulation lab. The students were then randomly assigned to either the LS ( $n = 26$ ) condition or the TAU ( $n = 28$ ) condition. The LS group attended a 2-day highly structured, intensive MI training that incorporated LS with SCs. Students in the TAU group were asked to complete online assignments and readings on technical MI skills over a 48-hour period. Following the completion of the LS and TAU procedures, all students again interviewed a child welfare SC for 30 minutes (T3). The T4 follow-up assessment was conducted approximately 5 months after completion of the training. At the follow-up, all students interviewed an SC for 30 minutes, and the interviews were evaluated to estimate retention of skills over time.

To compensate participants for their time, all students received cash incentives at each data collection point, parking vouchers for all study time points, and meals for the one-day didactic training and for the 2-day LS training.

All T2 through T4 audio recordings of interviews were sampled with a random 20-minute clip. The audio recordings were randomly assigned to coders who scored the tapes using the full MITI 3.1.1. Coders were trained by the MITI 3.1.1. author, who was also a member of the research team. The MITI author provided training in vivo, through weekly scheduled conference calls over a 6-week period, and then through weekly meetings for a 6-month period during the coding process. Procedures to train and supervise coders were similar to the procedures followed by Moyers et al. (2008). Coders did not have any contact with study participants, and study data were masked to prevent coders from discerning students' identity, group assignment, and when the interview occurred in the T2–T4 assessment process.

### Coding Results

T1 tapes were masked for group assignment and then randomly assigned to one of the two coders, with 20% double coded. For T1 tapes, no interviewee target behavior was identified for change, so a decision was made to code only for the interviewer's engaging skills. A single global rating for empathy was extracted.

In all, 154 tapes from T2, T3, and T4 were masked to group assignment as well as assessment time points and randomly assigned to coders, with another

20% of the tapes double coded. Coders coded a random 20-minute segment of the 154 work samples using the full MITI 3.1.1 coding system (Moyers et al., 2010).

Intraclass correlations were calculated to assess reliability between the two coders. For T2, T3, and T4, a random sample of 20% of audios ( $n = 31$ ) was chosen for double coding. This process yielded three separate estimates of reliability and a total reliability estimate. Reliability estimates were established according to Cicchetti's (1994) reported estimates for evaluating intraclass correlations. This threshold was also used for the Moyers et al. (2008) study. Overall, the reliability estimates were in the fair-to-excellent range. Table 1 presents the intraclass correlation values for all three time points and a total reliability score.

#### Standardized Clients for Motivational Interviewing Competence Assessment

The SCs used to assess MI skill development were adult actors employed by a university-based simulation lab; all actors received 3 hours of training specific to this study before working with students. The actors were given identical scripts that detailed the psychosocial history and role of the standardized child welfare client. The actor training entailed a general description of the structure of the research study; detailed discussion of the fictional character, including mannerisms, affect, and mood; and a detailed review of prepared or standardized responses to both MI adherent and MI nonadherent responses made by trainees. To familiarize the actors with the child welfare environment, the research team explained basic MI concepts and facilitated role-plays. These trained SCs were interviewed at T2, T3, and T4 in an interview lab on campus. Interviews were strictly time con-

**Table 1**  
*Intraclass Coder Correlation Coefficients at T2, T3, T4 and a Total Score*

Measure	Coding 1	Coding 2	Coding 3	All coding time points
Empathy	.828	.778	.572	.733
Global spirit rating	.984	.724	.455	.914
MIA	.447	.797	.647	.796
MINA	.972	.658	.966	.849
Closed questions	.964	.951	.909	.940
Open questions	.983	.959	.919	.962
Simple reflections	.896	.941	.801	.942
Complex reflections	.585	.969	.618	.856
Total reflections	.938	.968	.909	.986

Note. MIA = Motivational interviewing adherent. MINA = Motivational interviewing nonadherent. T2 = onset of training. T3 = conclusion of training. T4 = 5-month follow-up.

trolled and audio recorded. Training of actors occurred before each evaluation point (T2, T3, and T4).

### Standardized Clients for Live Supervision

A different set of actors was used for LS from the T2–T4 assessment actors. The training included the same protocol as previously described for SCs for assessment; however, the actors for LS also were informed about the LS procedure in which the simulation would be used as a teaching tool rather than an assessment of MI competence. During this phase of training, small groups of students took turns interviewing (15 to 20-minute interviews) the SC with a trainer located in an adjacent room providing LS to the students. The student conducting the interview wore a concealed earpiece that allowed the supervisor to give directives and instruction from an adjacent observation room. The trainers informed the actors that they would be involved in debriefing and feedback to the student.

### Live Supervision Group

The LS group completed a 2-day workshop, which provided students with a series of structured brief experiential learning opportunities within a small group format. This manualized training involved two steps: (a) reviewing key MI concepts in large-group sessions of 30 minutes (called *rapid review sessions*), followed by (b) SC interviews in a small group setting ( $n = 5$ ), during which the expert MI trainers provided LS with the goal of shaping MI intervention strategies along the four stages of MI (i.e., engagement, focusing, evoking, and planning). Students ( $n = 25$ ) in the LS condition were randomly assigned to 1 of 5 small groups, each with five students. Each group had one MI supervisor/trainer who provided the LS as outlined. There were two cycles of rapid review and LS per day: one cycle at the start of the day and one cycle after the lunch break. Each rapid review and subsequent LS session focused on one of the four MI stages. Over the 2-day training, each student participated in a total of four LS segments.

Each LS group was assigned a set of two rooms: an interview room and an adjacent observation room. A training manual was developed with clear steps and guidelines detailing live supervision; all supervisors participating in the training were instructed in the use of the live supervision manual. This manual was strictly followed during the training. Each interview room was equipped with (a) a camera, which allowed the supervisor/trainer and other students to observe the interview from the adjacent room, and (b) an earpiece, which was worn by the student conducting an interview and allowed the supervisor/trainer to give immediate feedback to the student while the interview was taking place. The supervisor/trainer provided coaching in real time and spoke discreetly through the earpiece and microphone to the student interviewing the SC in the adjacent room. The SC could not hear the supervisors' comments or directives.

During the LS training, all five student trainees in each small group completed a 15- to 20-minute interview in sequence. Before each interview, the supervisor discussed a pre-session strategy that reflected the case being considered and the stage of MI being discussed. This strategy session occurred with all members of each LS small group. The pre-interview discussion did not include the SC. Following this strategy session, the student trainee entered the room with the SC and conducted the 15- to 20-minute interview using MI under the watchful eye of the supervisor and other members of the small group. Immediately after the interview, the supervisor conducted a post-session debriefing with the student interviewer and the SC in the presence of the small group. Supervision focused on coaching and shaping the use of basic MI skills associated with the four stages of MI. Learning was integrated through structured debriefing following each trainee interview.

### Live Supervisor Training

The five LS trainers were experienced social work clinical faculty in child welfare. They completed a twice-a-month, 2-year small-group intensive MI training that included videotaped interview reviews and participation in LS with SC actors and actual clients, and a one-day training on implementation of LS. The trainers also practiced providing LS to child welfare students on multiple occasions before their participation as trainers for this study. All LS supervisors implemented the two-step training as described (see LS Supervision Group section). During each day of LS implementation, lunchtime meetings were held with supervisors to problem solve and to promote adherence to the manualized training format.

### Teaching as Usual

The TAU group received a self-paced MI online training that incorporated independent reading, review of PowerPoint slides, and viewing of MI training video clips. Students independently accessed these materials from the Blackboard online platform, which was accessible for 48 hours in the same 2-day intervention period as the LS training. The TAU group was not provided with the opportunity to practice newly learned MI skills (i.e., TAU condition did not use LS with SCs). The content and structure of the TAU training was designed to simulate typical MI classroom training as provided at our school of social work. Notably, TAU students were not tracked or held accountable for completing the online self-study course.

### Outcome Measures

**MITI.** The baseline audiotape interviews were coded using the empathy dimension of the global scale of the MITI 3.1.1 code (Moyers et al., 2010). All other

audiotapes were coded using the full coding system of the MITI 3.1.1, which yielded the main outcome variables for the study (for details regarding the specific elements of the MITI, ratings, and proficiency standards, consult Moyers et al., 2010). Table 2 shows the MITI summary measure and analysis formula. The MITI illustrates acceptable consistency and interrater reliability in evaluating practitioner MI skills (Moyers, Martin, Manuel, Hendrickson, & Miller, 2005). Scores from the MITI were also examined for beginning proficiency. Beginning proficiency was coded as 0 or 1, with 1 indicating the student met beginning threshold proficiency as defined by the MITI 3.1.1.

**Demographics.** Demographics measured at baseline included ethnicity, gender, educational background, relationship status, Title IV-E status, current child welfare employment, age, number of prior field placements, length of prior field placements, length of prior paid human service work, and length of prior volunteer work.

**General Self-Efficacy Scale.** The General Self-Efficacy Scale (GSE) is a 10-item measure developed by Schwarzer and Jerusalem (1995) that assesses an individual's general perception of self-efficacy and predicts coping with daily hassles and stressful life events. In the present study, the GSE was modified for a child welfare population to evaluate self-efficacy attributions for students working in the child welfare setting. GSE responses are made on a 4-point Likert-type scale. Scores are summed to yield a final composite score ranging from 10 to 40, with higher scores indicating greater extent of perceived self-efficacy. In samples from 23 nations, Cronbach's alphas for the GSE ranged from .76 to .90, with the majority in the high .80s. The overall reliability of the GSE was acceptable: At T1, reliability

**Table 2**  
*Calculation of MITI Summary Scores*

MITI summary measure	Formula
<b>Ratio of Reflections to Questions (R:Q)</b>	$= \frac{\text{Simple} + \text{Complex Reflections}}{\text{Open} + \text{Closed Questions}}$
<b>% Open questions (%OQ)</b>	$= \frac{\text{Open Questions}}{\text{Open} + \text{Closed Questions}}$
<b>% Complex reflections (%CR)</b>	$= \frac{\text{Complex Reflections}}{\text{Simple} + \text{Complex Reflections}}$
<b>% MI-Adherent (%MIA)</b>	$= \frac{\text{MI Adherent Behaviors}}{\text{MI Adherent} + \text{MI Nonadherent Behaviors}}$
<b>Empathy</b>	= Empathy Count on MITI 3.1.13.1.1
<b>Spirit global rating</b>	= (Evocation + Collaboration + Autonomy/Support)/3

*Note.* MITI = Motivational Interviewing Treatment Integrity Scale coding system.  
MI = Motivational interviewing. MIA = Motivational interviewing adherent.

for the scale was  $\alpha = .84$ ; at T2  $\alpha = .74$ ; at T3  $\alpha = .91$ ; and at T4 the reliability for the scale was  $\alpha = .89$ .

**Perceptions of Motivational Interviewing.** Assessments of the trainees' perceptions of motivational interviewing were made using the 17-item self-report Perceptions of Motivational Interviewing measure (Cronk et al., 2012). This measure assesses a general perception of using MI and perceptions of use within specific practice settings. All items are scored from *strongly disagree* (coded 1) to *strongly agree* (coded 5), with a maximum score of 85. Higher scores indicate a more positive perception of MI. The measure's reliability was assessed at each data point. Reliability at T1 was  $\alpha = .91$ ; at T2  $\alpha = .902$ ; at T3  $\alpha = .91$ ; and at T4 the reliability for the scale was  $\alpha = .92$ .

**Training satisfaction surveys.** Study authors developed a training satisfaction survey for the study. The training satisfaction survey consisted of open-ended questions that asked the students (a) to comment on their experience of receiving LS or participating in the TAU online training, and (b) to comment on the ways in which the learning experience (either LS or the TAU) helped to enhance their learning of MI. The training satisfaction survey was given at the end of the trainings, before T3.

### Data Analysis

All statistical analyses were performed using SPSS 22.0. Frequencies and chi-square analyses were used to determine if demographic differences existed between the LS and TAU groups. Repeated measures, factorial ANOVAs and multiple regressions were used to assess for differences across T2, T3, and T4 for each of the MITI 3.1.1 and the surveys. Given the small sample size and power detection challenges, a significance value of .07 was used.

**Qualitative data analysis of students' perception of MI training.** The goal of the qualitative analysis was to describe the experiences of the students (following Sandelowski, 2000). Data analysis for the open-ended write-in responses in the training satisfaction surveys occurred using a four-step process. First, the write-in portions of the surveys were entered verbatim into NVivo 10.0, which is a qualitative data analysis software program. Second, the survey responses were open coded to identify reoccurring themes. Third, a continuous constant comparative method (following Padgett, 2004) was used to compare themes and to identify commonalities and differences. Last, the themes were organized and interpreted.

### Research Questions

The following research questions were examined:

- Did participation in the LS group increase student perceptions of self-efficacy, and positive attitudes towards MI?

- Did LS trainees attain higher levels of MI skills than students in the TAU condition according to the MITI 3.1.1?
- Did students who participated in the LS group have greater proficiency with MI?
- Did scores on the MITI 3.1.1 at baseline and T2 predict scores at T3 and T4?
- What was the overall experience for students in the TAU and LS groups?
- In what ways was student learning enhanced?

## Results

### Demographic Findings

Tables 3 and 4 report the study participants' demographic characteristics. The average age of participants was 29.7 years and 85% ( $n = 46$ ) were female. Slightly more than half of the sample self-identified as White (52%,  $n = 28$ ) and 44% ( $n = 24$ ) self-identified as Black. For analytic purposes, ethnicity groups were combined to compare White and Minority. The majority of students were Title IV-E students (89%,  $n = 48$ ) with the remainder placed in child welfare agencies without specialized child welfare training. Approximately a third of students (32%,  $n = 17$ ) had a BSW and a third (32%,  $n = 17$ ) had undergraduate degrees in social sciences. One-way ANOVAs were used to test for differences among LS and TAU groups for the variables of age, years of paid human services work, years of volunteer work, and total combined months in internships or field experiences. Chi-square analyses were used to assess for differences between the groups for type of student (BSW/foundation/advanced), relationship status, ethnicity, and type of undergraduate degree. No significant between-group differences were found across these variables (see Tables 3 and 4).

### Research Question 1: Self-Report Findings

A repeated-measures ANOVA was used to assess for differences across T2, T3, and T4 for the self-efficacy survey and the perceptions of motivational interviewing. For the self-efficacy survey, no statistically significant difference was found across time or between groups. For the perceptions survey, no between-group difference was found; however, when comparing differences across time, a statistically significant difference was found that demonstrated an increase in scores [ $F(2.343, 450.609) = 13.662, p = .0001$ ]. Over time, both groups had a comparable increase in perceptions of MI scores, with an average increase of 7 points (62 at T2 to 69 at T4).

### Research Question 2: Differences in MI Skills

Averages for the measures of the MITI 3.1.1 for the LS and TAU groups are displayed in Table 5. Students were assessed at T2, T3, and T4 to examine whether

**Table 3**  
 Baseline Demographic Characteristics of Study Participants (N = 54)

Demographic	LS group % (n)	TAU group % (n)	Findings
<b>Ethnicity</b>			
White	31 (17)	20 (11)	$\chi^2(1, N = 54) = 3.884, p = .143$
Black	15 (8)	30 (16)	
Hispanic	2 (1)	2 (1)	
<b>Gender</b>			
Male	11 (6)	4 (2)	$\chi^2(1, N = 54) = 2.712, p = .103$
Female	37 (20)	48 (26)	
<b>Educational background</b>			
BSW	17 (9)	15 (8)	$\chi^2(3, N = 54) = .501, p = .919$
Social sciences/liberal arts/education	19 (10)	22 (12)	
Science	3 (2)	2 (1)	
Currently earning BSW	11 (6)	2 (1)	
<b>Relationship status</b>			
Never married	26 (14)	37 (20)	$\chi^2(2, N = 54) = 4.24, p = .120$
Married/partnership	20 (11)	9 (5)	
Divorced	2 (1)	6 (3)	
<b>Title IV-E student</b>			
Yes	41 (22)	48 (26)	$\chi^2(1, N = 54) = .809, p = .667$
No	7 (4)	4 (2)	
<b>Currently employed in child welfare setting</b>			
Yes	7 (4)	11 (6)	$\chi^2(1, N = 54) = .326, p = .414$
No	41 (22)	41 (22)	

Note. LS = Live supervision. TAU = teaching as usual. BSW = bachelor of social work degree.

their MI skills differed by group assignment and across time. T1 summary measures were not included in the analyses because the submitted interview content was irreconcilably different from the standardized interviews. Changes across time were positive for all but one MITI measure (i.e., reflection-to-question ratio) for the LS group and negative for all but one measure (i.e., percentage of open questions) for the TAU group. Across all measures, the scores rose by 1.39 percentage points for the LS group and declined by .85 for the TAU group.

Two-way repeated-measures ANOVAs were run for each of the MITI summary measures. For all ANOVAs, assumptions of normality, homogeneity covariance, and linearity were met. As shown in Table 6, analyses revealed that no significant differences existed between groups or across time for percentage of MIA,

**Table 4**  
ANOVA Findings for Demographics

Demographic	Total sample	LS group M (SD)	TAU group M (SD)	Findings
Age (in years)	Range 20–55 Median: 27; Mode: 26 Total Average = 29.7 (8.8)	29 (7)	29 (9)	$F(1, 53) = .000, p = .996$
Number of prior field placements/internships	Range 0–5, SD = 1.2 Median = 1, Mode = 0 Total Average = 1.1 (1.2)	1.4 (1.3)	1 (.9)	$F(1, 53) = 1.478, p = 2.30$
Length in months of prior internships/field placements	Range 0–48 Median = 7; Mode = 0 Total Average = 7.5 (8)	8.5 (9)	6.4 (7)	$F(1, 53) = .831, p = .366$
Length in years of prior paid human services work	Range 0–21, SD = 4.8 Median = 1.75, Mode = 0 Total Average = 3.12 (4.8)	3.5 (5)	3 (4.5)	$F(1, 53) = .229, p = .634$
Length in years of prior volunteer work	Range 0–13, SD = 2.4 Median = 1, Mode = 0 Total Average = 1.51 (2.4)	2 (3)	1.2 (1.4)	$F(1, 53) = .945, p = .336$

Note. LS = Live supervision. TAU = teaching as usual.

**Table 5**  
*Means (SD) of MITI Summary Measures for Live Supervision (LS) or Treatment as Usual (TAU)*

Measure	LS	TAU
<b>Empathy</b>		
T2	2.92 (1.3)	3.61 (1.2)
T3	3.67 (1.2)	3.37 (1.3)
T4	3.70 (1)	3.31 (1.1)
Change	+ .78	- .30
<b>MI spirit</b>		
T2	2.69 (1.1)	3.05 (.9)
T3	3.11 (1)	2.98 (1.1)
T4	3.12 (.9)	2.86 (1)
Change	+ .43	- .19
<b>% MI adherent behaviors</b>		
T2	.68 (.4)	.78 (.3)
T3	.83 (.3)	.71 (.4)
T4	.73 (.4)	.56 (.4)
Change	+ .05	- .22
<b>% Open questions</b>		
T2	.35 (.2)	.36 (.2)
T3	.39 (.2)	.36 (.2)
T4	.41 (.1)	.40 (.2)
Change	+ .06	+ .04
<b>% Complex reflections</b>		
T2	.34 (.2)	.42 (.2)
T3	.34 (.2)	.39 (.2)
T4	.50 (.2)	.42 (.2)
Change	+ .16	.00
<b>Reflection: Question ratio</b>		
T2	1.09 (1.5)	.80 (.5)
T3	1.00 (.9)	.97 (.7)
T4	1.00 (.6)	.68 (.4)
Change	- .09	- .18
Total Change	+1.39	- .85

*Note.* MITI = Motivational Interviewing Treatment Integrity Scale coding system. MI = Motivational interviewing. T2 = onset of training. T3 = conclusion of training. T4 = 5-month follow-up.

percentage of open questions, reflection-to-question ratio, or global spirit. However, a consistent trend of increasing improvement across all MI skill areas was noted for the LS group from T2 to T4. Observed power was very low at .134 for the effect of time, .54 for interaction, and .06 for group.

**Table 6***Two-Way Repeated Measures ANOVA Results for Effects of Group and Time and the Interaction*

Measure	Group			Time			Group × Time		
	F	p	$\eta^2$	F	p	$\eta^2$	F	p	$\eta^2$
Empathy	.06	.81	.00	.54	.59	.02	2.93	.06	.11
MI spirit	.13	.72	.00	.10	.90	.01	1.09	.35	.05
% MI adherent behaviors	1.35	.25	.03	1.87	.17	.08	1.75	.18	.07
% Open questions	.224	.64	.01	.20	.82	.01	2.63	.08	.10
% Complex reflections	.29	.59	.01	3.69	.03	.14	3.49	.04	.13
Reflection: Question Ratio	1.85	.18	.04	.77	.47	.03	.61	.55	.03

Note. MI = motivational interviewing.

Conversely, a significant difference was found across time and between groups for the MITI dimensions of the percentage of complex reflections and the global empathy score (see Table 6). For the percentage of complex reflections, the interaction effect between group and time was significant [Wilks' lambda  $F(2, 46) = 3.49$ ,  $p = .039$ ; effect size:  $\eta^2 = .13$ ; observed power was .62]. Post-hoc comparisons using the Bonferroni test indicated students in the LS group scored higher at T4 compared with students in the TAU group, despite the LS group beginning the training with lower scores on MITI measures. In addition, we found a statistically significant main effect for time [Wilks' lambda ( $F(2, 46) = 3.69$ ,  $p = .033$ ); effect size was  $\eta^2 = .14$ ; observed power was .65]. Post-hoc comparisons using the Bonferroni test indicated that the mean scores were significantly different between T2 and T4, ( $p = .030$ ).

For empathy, a significant interaction was found between group and time [Wilks' lambda  $F(2, 46) = 2.925$ ,  $p = .06$ ; effect size:  $\eta^2 = .02$ , observed power was .13], with the scores of the LS group trending higher than the TAU group. However, post-hoc comparisons did not detect a significant difference. No statistically significant main effect was found for time [Wilks' lambda ( $F(2, 46) = .544$ ,  $p = .584$ )].

### Research Question 3: Differences in MI Proficiency

Each student's application of MI skills was assessed for proficiency by using summary scores in the six MI areas: (a) percentage of complex reflections (%CR), (b) percentage of open questions (%OQ), (c) percentage MIA (%MIA), (d) reflection-to-question ratio (R:Q), (e) spirit global, and (f) empathy global. Beginning proficiency was coded as 0 or 1, with 1 indicating the student met criteria for beginning threshold proficiency as defined by the MITI 3.1.1 (see Table 7). Criteria used for proficiency was defined by the MITI 3.1.1 as an average global MI spirit

**Table 7**MITI 3.1.1 Beginning Proficiency and Group Assignment ( $N = 49$ )

Behavior count / summary score threshold	Group assignment	T2 % meeting threshold	T3 % meeting threshold	T4 % meeting threshold
Global MI spirit rating	TAU	35.7	35.7	30.0
	LS	19.2	42.0	34.8
Reflection to question ratio (R:Q)	TAU	32.1	42.9	19.2
	LS	34.6	42.3	47.8
% Open questions	TAU	25.0	29.6	23.0
	LS	23.0	16.7	30.0
% Complex reflections	TAU	57.1	55.6	61.5
	LS	42.3	37.5	60.9
% MIA adherent	TAU	53.6	51.9	30.0
	LS	50.0	62.5	56.5
Empathy	TAU	53.3	48.1	51.9
	LS	34.6	50.0	60.9

Note. MITI 3.1.1 = Motivational Interviewing Treatment Integrity Scale coding system (MITI). MI = motivational interviewing. TAU = teaching as usual. LS = live supervision. MIA = motivational interviewing adherent behavior. T2 = onset of training. T3 = conclusion of training. T4 = 5-month follow-up.

rating of 3.5, R:Q ratio of 1, %OQ at 50%, %CR at 40%, and %MIA at 90%. We looked for differences at T2, T3, and T4 to determine if differences existed in the beginning proficiency levels between the TAU and LS groups. Independent samples  $t$  tests were used to determine if a difference existed between the two groups; no statistically significant difference was found between the groups on any MITI measures at T2 and T3. At T4, of the six MITI areas, a statistically significant difference in favor of the LS group was found for the R:Q area ( $t(47) = -2.158, p < .05, 95\% \text{ CI } [-.554, -.018]$ ), and the %MIA area trended toward higher scores in the LS group ( $t(47) = -1.844, p < .08, 95\% \text{ CI } [-.538, .023]$ ).

#### Research Question 4: Predicting Scores Using Baseline Data

Scores on the MITI 3.1.1 at baseline or T2 did not predict scores at T3 or T4 in any MITI area. All models were nonsignificant.

#### Research Question 5: Qualitative Data: Students Perception of the Training

**Overall experience.** Students in the LS group reported a positive overall experience. Students were enthusiastic about the use of the LS training; one student stated, “*Though it took a moment to adjust [to the earpiece], having the live supervisor helped me to stop and challenge myself to use the techniques.*” In addition, students re-

ported that LS provided a clinical learning experience and the supervisor provided real-time suggestions that enabled the student to explore unforeseen options and formulate questions to ask the SC. Several students commented on the realistic nature of the LS training. As one LS student stated,

*I really liked and thought the suggestions through the earpiece helped a lot and showed me options of how to get unstuck with me in the situation. I feel one could sit in class and talk about it but until one does it, it doesn't really feel realistic.*

Students in the TAU group reported they were satisfied with the online materials but reported only moderate satisfaction with the overall training experience. Although some students reported they appreciated the self-paced feature of the online format, several students reported the online training was “boring” and they became “unfocused.” One student commented, “The lack of interactivity hampered my learning of these skills.”

**Enhanced learning experience.** Students in the LS training reported feeling that the 2-day training was effective in allowing for practice of MI skills, which led to greater understanding of MI skills. Students reported LS enhanced their experience by providing coaching on MI skills and real-time suggestions during the student’s interaction with the SC. In addition, students reported that the small group approach that included observing other students’ interviews, giving feedback, and processing each student’s interviews was useful. The small groups allowed students to learn from their peers’ interactions and provided the opportunity to observe the ways in which other students applied MI skills. One student provided the following appraisal: “It was great to see different peoples’ styles and approaches. Being in a small team environment encouraged my learning as I thought of many different ideas as a result of what was shared.” In addition, LS students reported a sense of safety with a supervisor present. “It was helpful to know I was being supported and could get great suggestions when I would get stuck in the [interview] process . . . I felt that if I messed up, someone had my back.”

Students in the TAU group reported that the online training enhanced their basic understanding of MI, but did not provide any opportunity application or practice of newly learned skills. Consequently, the online training did not increase students’ confidence in using MI skills. As one TAU student stated,

*I don't feel that the online portion enhanced my learning all that much. The textbook chapters were somewhat helpful, but the PowerPoint appeared to be a repeat of what I'd already seen, and the video didn't seem to push the lessons any further.*

## Discussion

The present study examines the effect of a brief LS model of MI training on social work students in child welfare. Similar to the conclusions of other studies

that assess the utility of a brief training module, the current study findings agree that fully embracing the spirit and technical skills of MI is not a short-term process (Moyers et al., 2008; Mitcheson, Bhavsar, & McCambridge, 2009). However, the study found that LS was effective in teaching early stages of MI skills, supporting prior research (Miller & Moyers, 2006).

LS was shown to be an effective approach for teaching trainees how to convey empathy to clients, not only in the short-term but also over the long-term. Study findings showed that the LS group demonstrated a steeper rate of improvement in their ability to use more complex reflections and express empathy over time than the TAU group. Miller and Moyers (2006) identify conducting client-centered counseling, such as using primary accurate empathy, as an early step in learning MI. Additionally, counselors with higher empathy appear to have higher success rates and a stronger therapeutic alliance than counselors with low-empathy and confrontational counseling styles (Moyers & Miller, 2013). Because engagement is an essential element in child welfare and empathy promotes engagement (Forrester, Kershaw, Moss, & Hughes, 2008), a brief training protocol that effectively increases empathic communication could have significant utility in workforce training.

The study also examined whether LS promoted proficiency in using MI in a simulated child welfare setting. Data collected at the 5-month follow-up indicated that, as compared with the TAU group, the LS group was more likely to meet criteria for beginning proficiency and to maintain proficiency in the MI areas of R:Q and %MIA. Decay of skills over time is common, especially in the absence of continued training (Miller et al., 2004; Moyers et al., 2008). Over time, some decay was noted in the acquired skills in the LS group, but the amount of skill decay was significantly less than the amount of decay experienced in the TAU group. The maintenance of these skills among the LS group can be cautiously attributed to the positive effects of LS. However, the utility of LS in teaching MI skills requires additional investigation and study.

Qualitative findings further suggest that students in the LS group felt the hands-on experience supported them and enhanced their experience by providing real-time suggestions from the supervisor that positively affected their interactions with the SC. Although the students in the TAU group felt their overall understanding of MI increased, they noted their ability to apply MI skills did not change. An additional qualitative finding from the LS students was the benefit they received from the small group interactions. Students appeared to learn as much from the interactions with their peers as they did from the supervisor feedback. Overall, the qualitative findings suggest that as compared with TAU, the LS model increases knowledge, provides opportunity for practical application, and increases trainee confidence in using MI, supporting the quantitative findings.

Although statistical significance was seen only for the MI area of R:Q, we observed that the LS group displayed trends of attaining higher levels of MI pro-

iciency on the additional MITI measures (%MIA, %OQ, R:Q, and global spirit) as compared with the TAU group. Trainees in the TAU group also exhibited decay at the 5-month follow-up in their measures of global spirit of MI and %OQ. The inability to reach statistical significance might have been due to power; even though we conducted an a priori power analysis, there was a gap between previous published studies to guide and direct our estimates. Our predictions were based on MI studies in which the subjects were licensed professionals rather than novice students in training. Future studies using the MITI to code MI skills with students should take the issue of power into consideration.

One important dimension of the LS that we believe contributed positively to student learning was the supervisors/trainers' modeling of MI. The manualized LS training allowed the group supervisors to actively demonstrate and model MI skills with the trainees during LS and the debriefing period following each trainee interview. Supervisors treated student trainees respectfully, with empathy, and acknowledged the students' autonomy or control over their change and learning process. The supervisors in the LS small groups looked for and promoted change talk in trainees because trainees are often initially ambivalent about using MI with the child welfare population. Hence, the LS served as a form of MI applied to students to support their change into proficient MI users.

In addition to the four coded interview assessments, participants completed a uniform series of survey measures administered at each assessment point (T1–T4). No statistically significant differences were found across time or between group membership for the Self-Efficacy Survey, and the Perceptions of Motivational Interviewing scale measures showed differences only over time. Perhaps the most significant problem with the questionnaires were their obvious face validity and the resulting ceiling effect that was noticed on the measures. For example, social workers by their self-selection into the profession might have high levels of self-reported self-efficacy at baseline, as well as social desirability that leaves little room for improvement following training.

### Limitations

Perhaps the biggest limitation of the present study was the inability to code the T1 interview tapes with the full MITI, because the interview content was dissimilar to the subsequent SC interview case. The SC interviews at T2 to T4 were set up to be conducive to using MI; the clients presented behaviors that they felt ambivalent about changing. However, for T1, students interviewed a friend about their family of origin or an important event that happened, and thus, were not presented with a target change behavior. The T1 prompt did not adequately support the use of the full range of MI skills, except for the student's portrayal of empathy.

In addition, students in the TAU condition were not tracked for compliance with the MI activities (reading, reviewing videos). Therefore, it is not known if

students actually completed their activities; failure to complete the self-paced study might influence the lack of progress for students in the TAU. However, the TAU intervention was designed to mimic what is typically presented in a classroom setting. Nevertheless, future studies should track students' participation and completion of activities to determine the uptake and dosage of the TAU intervention.

Another limitation is related to the implementation of LS. The LS consisted of five small groups, and each group had their own trainer. The researchers did not incorporate a standardized measure of fidelity between supervisors to ensure that the training was equivalent across groups, even though all supervisor/trainers followed a manualized two-step training process. Given the small sample size, the study could not thoroughly explore the possible impact of training variability among groups. Nonetheless, the LS training model had a detailed manual to guide the trainers. In addition, prior to their participation in this study, all trainers had completed a 2-year LS training course and participated in a one-day training in the method of supervision. Because of the potential variability among trainers, it would have been helpful to have assessed the trainer's ability to use MI via coding an interview or to have implemented a method to ensure that the manualized approach was being delivered reliably across supervision groups.

In spite of some shortcomings, the study adds to the limited literature on assessing the effect of LS training on the learning process of clinical skills. In addition, this study adds to the limited social work literature available with SCs, child welfare, and students. To the best of our knowledge, this study is the first to implement a RCT using SCs to assess MI learning among social work students in child welfare. Another study strength that highlights the procedural component of this RCT is the low sample attrition, especially after randomization; at T3 and T4, retention was 96% and 94%, respectively.

### Implications

Based on the results that indicate LS can strengthen beginning MI skills, LS can potentially be helpful to training programs looking for a curriculum that promotes the development of MI proficiency in a relatively brief educational experience. The study is replicable, with a LS manual that describes the two-step training procedure. With technology support, the LS of individual students with a trainer is possible in a classroom setting while other students observe and participate in the debriefing before conducting their own interviews. However, evaluating the efficacy of the LS model with a larger sample of trainees is needed first. In addition, future studies should better assess baseline behavioral proficiency to accurately evaluate the gains over time. Moreover, an important element of future research will be incorporating how the training translates to work with actual clients in real-world practice settings.

Our study illustrates an example of assessing a student's ability to demonstrate clinical skills learned through a SC interview. However, additional research should examine whether using an SC helps or hinders the student learning process as students move through the four MI stages. Currently, despite concerns about the use of SCs (Miller et al., 2004), the use of SC in MI training might be a way to meet the competency demands of the social work profession. Most professional education requirements now emphasize the need for trainees to exhibit competence in skill-based activities prior to graduation or certification. The use of SCs would be one way to meet that requirement; for example, requiring students to demonstrate basic skills or levels of competency in an SC interview.

Most important, the study also supports the idea that future child welfare workers can develop and maintain an openness to using MI with clients in typical child welfare scenarios and learn to use MI in clinical practice. Some child welfare workers resist using MI. This sentiment parallels that of substance abuse practitioners nearly 20 years ago, before these practitioners moved from an authoritative and directive intervention model to a collaborative and client-centered model. A training model such as the one used in this study that considers the context of the client interactions and learning needs of the trainees might be able to shift the clinical paradigm of child welfare workers.

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